

JOSEPH ONEBANE (1917-1987)
JOHN G. TORIAN, II (1936-1991)

ONEBANE LAW FIRM

A Professional Corporation

TIMOTHY J. MCNAMARA
EDWARD C. ABELL, JR.
LAWRENCE L. LEWIS, III†
ROBERT M. MAHONY
DOUGLAS W. TRUXILLO*
RANDALL C. SONGY
MICHAEL G. DURAND
GREG GUIDRY*
JOSEPH L. LEMOINE, JR.††
MARK L. RILEY
GRAHAM N. SMITH*
GORDON T. WHITMAN
GARY P. KRAUS
RICHARD J. PETRE, JR.
CHARLES J. BOUDREAUX, JR.
THOMAS G. SMART
ROGER E. ISHEE**
STEVEN C. LANZA
JESSE D. LAMBERT††*
ROBERT J. DAVID, JR.
BRENT G. SONNIER***
MARIA FABRE MANUEL
GREG R. MIER††
MICHAEL P. MARAIST
JOAN LABBE BOUDREAUX

SUITE 600 VERSAILLES CENTRE
102 VERSAILLES BOULEVARD (70501)
POST OFFICE BOX 3507
LAFAYETTE, LOUISIANA 70502-3507

FAX: (337) 266-1232
TDD: (337) 266-1217
TELEPHONE: (337) 237-2660
www.onebane.com

October 22, 2002

APPLICATION

OF COUNSEL
WILLIAM E. KELLNER
MARK B. OLIVER
CRAIG A. RYAN
GREGORY K. MOROUX
FRANK H. SPRUIELL, JR.*
FREDERICK R. PARKER, JR.††
MICHAEL D. SKINNER

SHREVEPORT OFFICE
400 TRAVIS STREET, SUITE 1000
SHREVEPORT, LA 71101
TELEPHONE (318) 674-9770
FAX (318) 674-9775

†LL.M. IN HEALTH LAW
†BOARD CERTIFIED TAX ATTORNEY
LL.M. IN TAXATION
††REGISTERED PATENT ATTORNEY

*ALSO ADMITTED IN TEXAS
**ALSO ADMITTED IN MISSISSIPPI
***ALSO ADMITTED IN OKLAHOMA

VIA FIRST CLASS MAIL

Honorable James H. Welsh
Commissioner of Conservation
Louisiana Office of Conservation
Post Office Box 94275
Baton Rouge, Louisiana 70804-9275

RECEIVED

OCT 23 2002

OFFICE OF CONSERVATION
ENGINEERING DIVISION

RE: Application for Extension of Commingling Authority (Well Test)
West Cheneyville Commingling Facility No. 1
Chesapeake Operating, Inc. Book 14 AUS C RA SUM No. 1 Well
West Cheneyville Field, Rapides Parish, Louisiana
Applicant: Chesapeake Operating, Inc.

Dear Commissioner Welsh:

Application is hereby made on behalf of **CHESAPEAKE OPERATING, INC.** ("Chesapeake") for the calling of a public hearing, after ten (10) days legal notice, to consider evidence relative to the issuance of an order pertaining to the extension of authority for commingling of production from an additional drilling and production unit as proposed herein to be added to the captioned existing facility, for the Austin Chalk Sand, Reservoir A, in the West Cheneyville Field, Rapides Parish, Louisiana, to-wit:

1. To grant an extension of authority for the commingling of gas and liquid hydrocarbons produced from the AUS C RA SUM (Book 14 No. 1 Well) in the West Cheneyville Field, Rapides Parish, Louisiana, and the use of periodic well tests for the allocation of production to said unit and well;

2. To grant such exceptions to Statewide Order No. 29-D-1 as are required by the proposed procedure and to grant such additional authority and approval that may be needed for such procedure; and
3. To consider such other matters as may be pertinent.

Attached hereto and made a part hereof are:

- (a) a field area plat depicting the location of the wells and units currently producing into the commingling facility, and the well and unit from which production is proposed to be added thereto;
- (b) a detailed narrative explanation of the manner in which commingling will continue to be accomplished for the facility with the proposed additional unit added; and,
- (c) a schematic block flow diagram of the subject commingling facility as reconfigured.

Initial authority for commingling of production into the subject facility, with fair allocation to be accomplished by well test, was originally granted by Order No. 1415-1, effective July 22, 1997.

The unit to be added to the subject commingling facility, designated as the AUS C R A SUM, was created by Order No. 1415-A-1, effective March 31, 1998, in the Austin Chalk Zone, Reservoir A.

Chesapeake as applicant, and owner and operator of the West Cheneyville Commingling Facility No. 1 in the West Cheneyville Field, will continue to accomplish commingling and allocation in the manner set forth in the narrative explanation, and as shown on the schematic flow diagram of the commingling facility, reconfigured as proposed, each attached hereto.

It is the opinion of Chesapeake that the extension of authority for commingling as proposed herein will provide reasonably accurate measurement, will not create inequities, and that the owner of any interest will have the opportunity to recover his just and equitable share of production or revenues accruing from the units and wells under consideration.

Whereas it is practically infeasible to obtain approval from 100% of the numerous interested parties in the afore described unit proposed for commingling herein, Chesapeake requests that this matter be set for public hearing after legal notice. Enclosed is a list of the names and addresses of the Interested Owners, Interested Parties and Represented Parties to whom a copy of this application is being sent. Pursuant to the Revised Rules of Procedure, such list of parties is being furnished only to the Commissioner of Conservation and to the District Manager of the Lafayette District of the Office of Conservation; however, the list of parties will be provided to any party requesting a copy

RECEIVED

OCT 23 2002

OFFICE OF CONSERVATION
ENGINEERING DIVISION

October 22, 2002

of it. A reasonable effort was made to ascertain the names and addresses of all Interested Owners, Interested Parties and Represented Parties, as listed.

Finally, enclosed herewith is our check on behalf of the applicant, Chesapeake Operating, Inc., in the amount of \$700.00 made payable to the Office of Conservation and representing the required hearing application fee.

Very truly yours,



BRENT G. SONNIER

BGS

Enclosures

cc: Mr. Richard Hudson, District Manager
Louisiana Office of Conservation, Lafayette Office

Mr. Todd Keating, Engineering Division ✓
Louisiana Office of Conservation, Baton Rouge Office

Mr. Gary S. Dunlap, Chesapeake Operating, Inc.

Interested Owners, Represented Parties
and Interested Parties

RECEIVED

OCT 23 2002

OFFICE OF CONSERVATION
ENGINEERING DIVISION

**DETAILED NARRATIVE
FLOW, MEASUREMENT AND ALLOCATION OF
GAS AND LIQUID HYDROCARBONS THROUGH
WEST CHENEYVILLE COMMINGLING FACILITY NO. 1
October 22, 2002**

1. Introduction:

The subject commingling "Facility" was constructed to handle the extremely large volumes of liquid hydrocarbon and water produced from horizontal well completions in the Austin Chalk in the West Cheneyville Field. Initial commingling for the facility was granted under Order 1415-1, effective July 22, 1997, and the following five units and wells operated by Chesapeake are currently producing into the Facility thereunder:

**AUS C RA SUB; Vanderlick 33 No. 1
AUS C RA SUC; Hecht 26 No.1
AUS C RA SUI; Eastin 8 No. 1**

**AUS C RA SUJ; Lyles 10 No. 1
AUS C RA SUK; Johnson 12 No. 1**

Proposed Additional Unit and Well: AUS C RA SUM; Book 14 No. 1 Well

2. General Facility Configuration:

Attached is a field area plat (Exhibit 1) depicting the wells and units currently producing into the Facility, and the well and unit from which production is proposed to be added to the Facility. The existing Facility with the proposed modification will accommodate the testing of individual wells, the processing of production in order to separate gas, oil and water, the storage of oil for sales, the measurement of gas and oil sales volumes, the dehydration of gas, and the disposal of produced saltwater.

With reference to the attached Block Flow Diagram (Exhibit 2), each well, including the unit well for the AUS C RA SUM as proposed for addition to the Facility, flows a bulk well stream into an inlet manifold. From this manifold, either combined bulk streams therefrom can be flowed for processing in bulk high pressure (HP) and bulk low pressure (LP) separators, or flow from an individual well can be turned to one of two test HP/LP separator trains for test measurement by appropriate metering of gas, oil and water for allocation purposes.

The oil sales point is located within the Facility. There are two (2) truck loading Lease Automated Custody Transfer (LACT) Units in place to measure oil sales volumes. Produced saltwater is disposed of into one of two (2) disposal wells at the Facility.

The gas sales point is located at the tailgate of the Facility, where the total commingled gas volume is finally measured, providing for reasonably accurate allocation of production to the respective wells flowing into the Facility.

3. Description of Production Flow, Testing and Measurements:

With reference to the attached Block Flow Diagram (Exhibit 2), the production from each producing well is transported through an individual flowline to the inlet manifold located at the Facility site. The inlet manifold is designed to allow flow from each well to be directed either for individual testing or to be otherwise combined with untested bulk flow from the other wells flowing into the Facility.

Each well flowing into the Facility is periodically tested through the "Test Trains" to determine the rate at which the well is producing gas, liquid hydrocarbons and saltwater. These test rates are used to fairly allocate production among the individual wells. All wells not on test are directed into and commingled in the "Bulk Train." The facility is manned 24 hours per day to allow for a frequency of testing deemed necessary to assure accurate measurement and allocation. While the Facility is designed to allow testing of two wells simultaneously using each of the two Test Trains, each well is tested as frequently as operations allow, but in no case less than one time per month, nor less than the permitted minimum standards set forth in the supplement to Statewide Order 29-D.

More specifically, the Facility is designed to allow periodic testing of each individual well flowing into the Facility to determine its production flow rate. This test flow rate is used to allocate the total production back to the individual wells flowing into the Facility. The equipment at the Facility is configured into three processing trains. Two of the trains are dedicated as the "Test Trains" and can simultaneously process the production from any two wells for discrete testing. The other train is dedicated as a "Bulk Train" to process production from all wells not then being tested. Both Test Trains are of similar design and operate under similar conditions to ensure uniform and compatible measurement.

Each Test Train consists of a HP separator and a LP separator which separate the gas, oil and water production into segregated stream flows and measure the test well production volumes of these discrete flows. The Test Train production first enters the HP separators, which are three phase separators (i.e., gas, liquid hydrocarbons and water), operating at about 750 psi. The HP gas outlets are equipped with orifice meters which provide continuous metering to measure HP gas for allocation.

From the HP separator, liquid hydrocarbons, with entrained gas and water, flow to the LP separators for additional three-phase separation, operating at about 70 psi. The LP gas outlets are also equipped with orifice meters that provide continuous measurement of gas exiting the LP separators. The oil outlets of the LP separators are equipped with turbine flow meters to measure liquid hydrocarbon production rates. Separated oil exits the Test Train LP separators through dump valves and is measured by turbine flow meters for allocation.

Water from the HP separators flows through a 25 micron filter to remove any fine solids, then the water is directed into one of two site disposal wells. The water outlets of the HP separators are equipped with turbine flow meters to measure saltwater production rates. Water from the LP separators is collected in water storage tanks where it is measured by gauge, and then filtered and sent to one of the two disposal wells for disposal.

The above described meters are all utilized for reasonably accurate allocation of gas and liquid hydrocarbon production flowing into and processed in the Facility.

The production from all of the wells, other than wells being periodically tested, is commingled at the inlet manifold and flows into the Bulk Train HP and LP three-phase separators and undergoes similar processing for separation as described above for the Test Trains. The commingling bulk production first enters the Bulk Train HP separator operating at about 750 psi for three-phase separation into gas, liquid hydrocarbons and produced saltwater. The HP separator gas outlet is equipped with an orifice meter allowing continuous measurement of gas exiting the vessel to be used for allocation.

Liquid hydrocarbons, with entrained gas and saltwater, flows from the HP separator to the LP separator, operating at about 70 psi, for further three-phase separation. The oil outlet for the LP separator is equipped with a turbine meter which measures the liquid hydrocarbon production rate. The Bulk Train LP separator gas outlet is equipped with an orifice meter to provide for continuous measurement of gas exiting the LP separator.

The water outlet of the HP separator is equipped with a turbine meter to measure saltwater production rates. Water from the HP separator flows through a 25 micron filter to remove any fine solids, then the water is directed into one of two site disposal wells. Water from the LP separators is collected in water storage tanks where it is measured by gauge, and then filtered and sent to one of the two disposal wells for disposal.

After separation, the gas from the Test Train HP separators is commingled with gas from the Bulk Train HP separator in the HP gas line, and the gas from the Test Train LP separators is commingled with the gas from the Bulk Train LP separator into the LP gas line. The LP gas is routed to the Facility gas compressor, which injects the compressed gas stream into the HP line, along with gas from the VRU system, which is then commingled with the HP gas. This combined gas stream then flows to the gas sales meter at the Facility tailgate where it is finally measured for sales.

After separation, liquid hydrocarbons from the two Test Train LP separators is commingled with liquid hydrocarbons from the Bulk Train LP separator and then routed to oil storage tanks for collection and sale. The Facility also is equipped with several scrubbers (i.e., coalesce filter separators) which collect residual volumes of natural gas liquids ("drip"), which is also routed to the oil tanks for collection and sale.

All allocation meters and sales meters are periodically checked for proper calibration, consistent with the applicable rules of the Office of Conservation. Additionally, if at any time between regular testing intervals the choke size of any well is changed, the time and date of the change is recorded and a new production rate test is conducted after the well has stabilized on the new choke.

Individual wellhead pressures are also monitored to detect any significant change in a well's tubing pressure. In the event of such a change, that well is placed into test as soon as practical following the change.

In the event a well is shut in for twenty-four (24) hours or more, that well is tested immediately after resumption of stabilized flow from the well. In the same way, in the event that all or a substantial number of the wells in the field are shut in for 24 hours or more, those wells shall be immediately tested when brought back into production after resumption of stabilized flow.

4. Allocation of Gas and Liquid Hydrocarbon Sale Volumes:

The total monthly gas sales volume is measured at the sales point at the Facility tailgate with an orifice meter. The total monthly liquid hydrocarbon sales volume is measured by the two LACT Units at the Facility. These gas and liquid volumes are allocated among the individual wells based on the individual production rates as periodically measured using the two Test Trains for individual well tests. The oil and gas production volumes are allocated among the individual wells on a daily basis.

The process used for reasonably accurate production allocation is as follows:

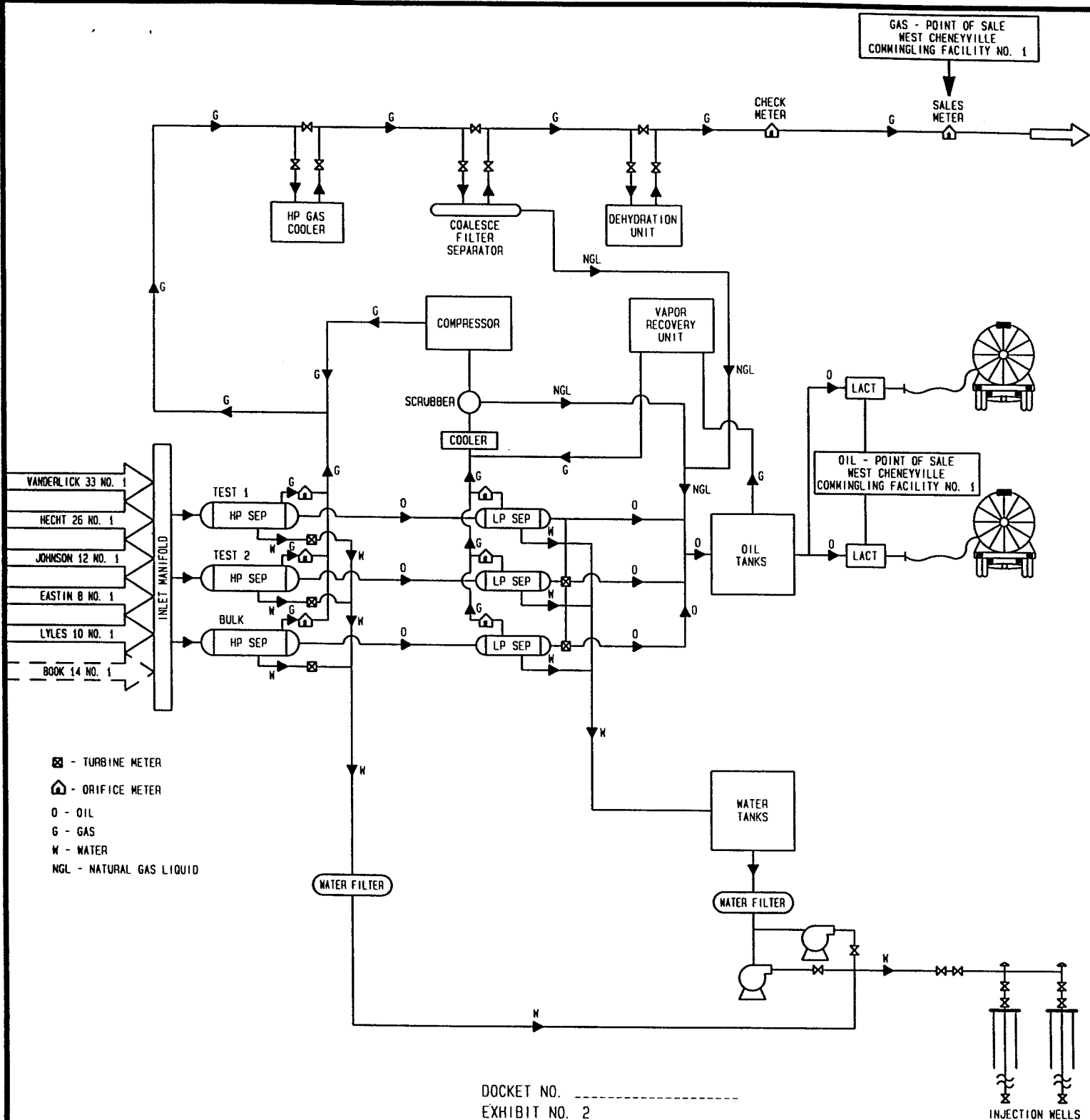
- Each well's **daily allocated production volumes** (i.e., gas and liquid hydrocarbons discretely) are determined by multiplying each well's most recent tested hourly production rate for gas or liquid hydrocarbons, respectively, by the number of hours the well produced during the day being considered.
- At the end of the month, each well's **initial total allocated production** is calculated for the month by summing the well's daily allocation production of gas and liquid hydrocarbons, respectively.
- The **total facility allocated production volumes** are then calculated for the month by summing the initial total allocated production volumes of gas and liquid hydrocarbons for all wells.
- The **total facility actual production volumes** for gas and liquid hydrocarbons are then calculated.
 - For gas, the sum of the total volumes for the month recorded at the sales meter and the fuel gas meter is used.
 - For liquid hydrocarbons, the sum of the stock on hand at the end of the month and the sales volume for that month, minus the initial stock on hand at the beginning of the month, is used.
- **Adjustment factors** are then calculated for both gas and liquid hydrocarbons.
 - For gas, the adjustment factor is the ratio of total facility actual gas production volume divided by the total facility allocated gas production volume.
 - For liquid hydrocarbons, the adjustment factor is the ratio of the total facility actual oil production volume by the total facility allocated production volume.
- Each well's **final allocated volume** is then calculated by multiplying each well's initial total allocated volume of gas and liquid hydrocarbons by the applicable adjustment factor.

5. Meter Inspection, Calibration and Testing Frequency

- All orifice meters used to measure natural gas volumes will be tested for accuracy monthly; and, turbine meters used to measure liquid hydrocarbons will be tested monthly. Such testing is to be conducted by an independent third party. All wells shall be tested a minimum of four hours at least once a month to determine productivity rate.

6. Measurement and Correction Standards

- All allocation volume measurements made in the subject Facility will be in accordance with *Manual of Petroleum Measurement Standards*, Chapter 20, "Allocation Measurement," as published by the American Petroleum Institute.
- All corrections to hydrocarbon volume measurements made in the subject Facility will be made consistent with the "Petroleum Measurement Tables Volume Correction Factors," a publication jointly endorsed by the American Society for the Testing of Materials (ASTM), American Petroleum Institute (API), and the Institute of Petroleum (IP). (ASTM designation: D140; API Standard: 2540; and, IP designation: 200).



DOCKET NO. _____
EXHIBIT NO. 2

CHESAPEAKE OPERATING, INC.
LAFAYETTE, LOUISIANA

BLOCK FLOW DIAGRAM
COI - WEST CHENEYVILLE
COMMINGLING FACILITY NO. 1
RAPIDES PARISH, LOUISIANA

Prepared by: C.H. Fenstermaker & Associates, Inc.
Lafayette & New Orleans, La. & Houston, Texas

REVISED:	JOB NO: 2021916	DATE: SEPTEMBER 26, 2002
	SHEET 1 OF 1 SHEET	DRAWN BY: KJP
FILE: 2021916 i:/infocad/wells/englewod	16	NOT TO SCALE